

SKR-E | SKS-E

SCREW ANCHOR FOR CONCRETE CE1



SEISMIC PERFORMANCE

Certified for applications on cracked and non-cracked concrete and in performance class for seismic actions C1 (M10-M16) and C2 (M12-M16).

IMMEDIATE STRENGTH

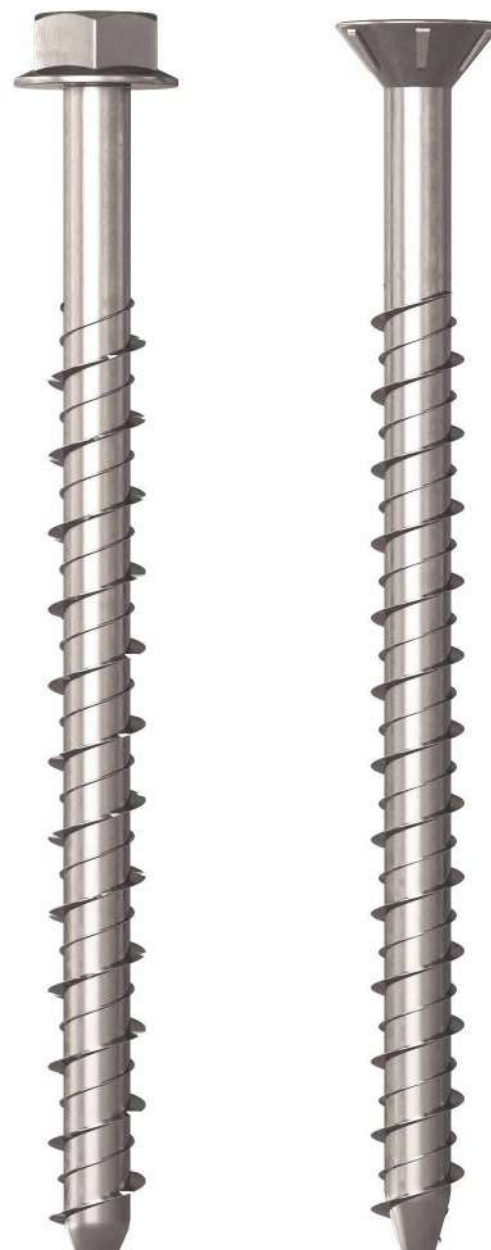
Its operating principle allows the load to be applied after zero waiting times.

FIRE RESISTANCE

Certified for fire exposure class R120 according to Technical Report TR 020.

CHARACTERISTICS

FOCUS	screw for concrete
HEAD	hexagonal and countersunk
DIAMETER	from 7,5 to 16,0 mm
LENGTH	from 60 to 400 mm



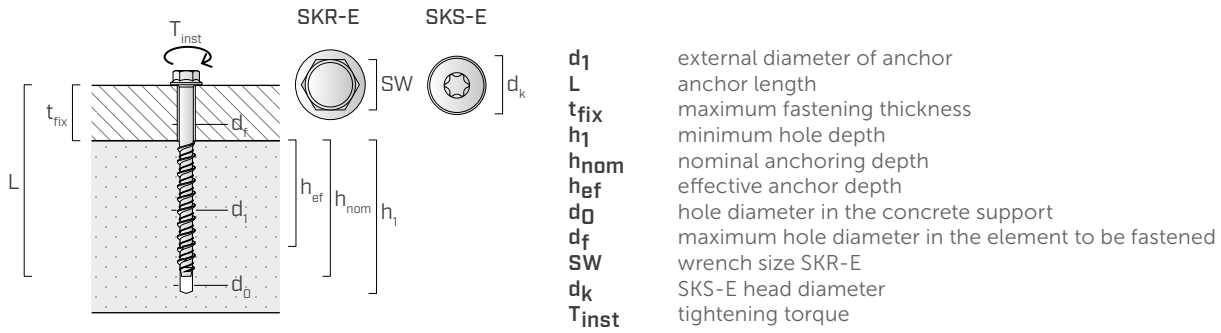
MATERIAL

Galvanized carbon steel.

FIELDS OF USE

Fastening of timber or steel elements to concrete supports. Service classes 1 and 2.

SKR-E | SKS-E GEOMETRY



CODES AND DIMENSIONS

SKR-E hexagonal head with mock washer

CODE	d_1 [mm]	L [mm]	t_{fix} [mm]	$h_{1,min}$ [mm]	h_{nom} [mm]	h_{ef} [mm]	d_0 [mm]	d_f [mm]	SW [mm]	T_{inst} [Nm]	pcs
SKR8100CE	8	100	40	75	60	48	6	9	10	20	50
SKR1080CE	10	80	10	85	70	56	8	12	13	50	50
SKR10100CE		100	30	85	70	56	8	12	13	50	25
SKR10120CE		120	50	85	70	56	8	12	13	50	25
SKR1290CE	12	90	10	100	80	64	10	14	15	80	25
SKR12110CE		110	30	100	80	64	10	14	15	80	25
SKR12150CE		150	70	100	80	64	10	14	15	80	25
SKR12210CE		210	130	100	80	64	10	14	15	80	20
SKR12250CE		250	170	100	80	64	10	14	15	80	15
SKR12290CE		290	210	100	80	64	10	14	15	80	15
SKR16130CE	16	130	20	140	110	85	14	18	21	160	10

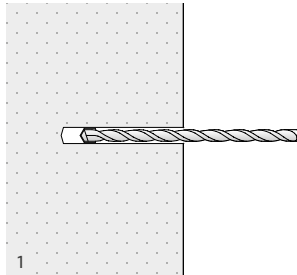
SKS-E countersunk head

CODE	d_1 [mm]	L [mm]	t_{fix} [mm]	$h_{1,min}$ [mm]	h_{nom} [mm]	h_{ef} [mm]	d_0 [mm]	d_f [mm]	d_k [mm]	TX	T_{inst} [Nm]	pcs
SKS75100CE	8	100	40	75	60	48	6	9	16	TX30	20	50
SKS10100CE	10	100	30	85	70	56	8	12	20	TX40	50	50

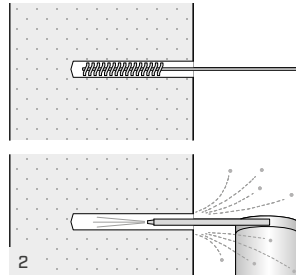
TECHNICAL FEATURES

- CE option 1 for cracked and uncracked concrete
- Seismic performance category C1 (M10-M16) and C2 (M12-M16)
- Electrogalvanized carbon steel
- Flanged head with self-locking knurling (SKR-E)
- Fire resistance R120
- Through fastening
- No fastener expansion

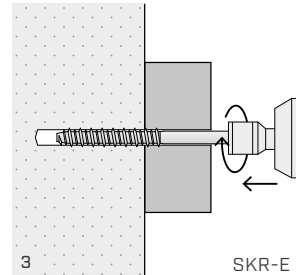
ASSEMBLY



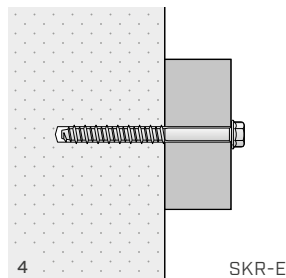
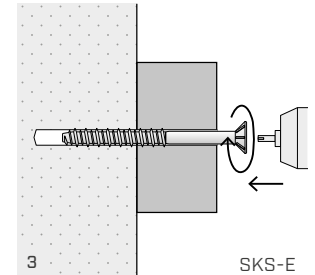
1
Drill a hole in rotary percussive mode



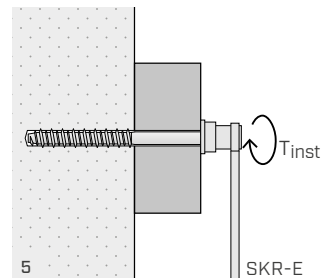
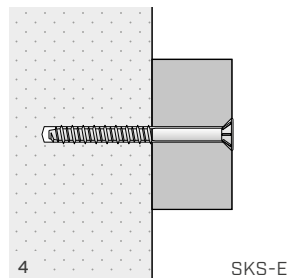
2
Clean the hole



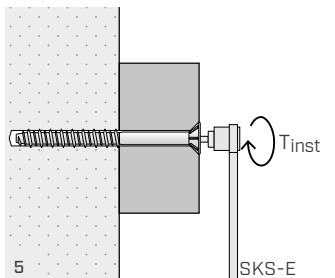
3
Position the object to be fixed and install the screw with a pulse screw gun



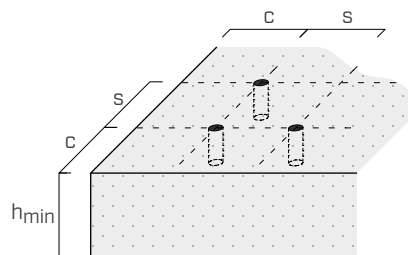
4
Make certain that the screw head is in complete contact with the object to be fixed



5
Check the tightening torque T_{inst}



INSTALLATION



			SKR-E/SKS-E			
Spacing and minimum distances			Ø8	Ø10	Ø12	Ø16
Minimum spacing	s_{min}	[mm]	45	50	60	80
Minimum edge distance	c_{min}	[mm]	45	50	60	80
Minimum thickness of concrete support	h_{min}	[mm]	100	110	130	170
Spacing and critical distances			Ø8	Ø10	Ø12	Ø16
Critical spacing	$s_{cr,N}^{(1)}$	[mm]	144	168	192	255
	$s_{cr,sp}^{(2)}$	[mm]	160	175	195	255
Critical edge distance	$c_{cr,N}^{(1)}$	[mm]	72	84	96	128
	$c_{cr,sp}^{(2)}$	[mm]	80	85	95	130

For spacing and distances smaller than the critical ones, strength values have to be reduced depending on the installation parameters.

■ STATIC VALUES

Valid for a single anchor in thickened C20/25 grade concrete with a thin reinforcing layer when spacing and edge-distance are not limiting parameters.

CHARACTERISTIC VALUES

		UNCRAKED CONCRETE				CRACKED CONCRETE			
		tension ⁽³⁾		shear ⁽⁴⁾		tension ⁽³⁾		shear	
		$N_{Rk,p}$ [kN]	γ_{Mp}	$V_{Rk,s}$ [kN]	γ_{Ms}	$N_{Rk,p}$ [kN]	γ_{Mp}	$V_{Rk,s/Rk,cp}$ [kN]	$\gamma_{Ms,Mc}$
SKR-E	8	16	2,1	9,4	1,5	4	2,1	9,4 ⁽⁴⁾	1,5
	10	20	1,8	20,1	1,5	7,5	1,8	15,1 ⁽⁵⁾	1,5
	12	25	2,1	32,4	1,5	9	2,1	32,4 ⁽⁴⁾	1,5
	16	40	2,1	56,9	1,5	16	2,1	56,4 ⁽⁵⁾	1,5
SKS-E	8	16	2,1	9,4	1,5	4	2,1	9,4 ⁽⁴⁾	1,5
	10	20	1,8	20,1	1,5	7,5	1,8	20,1 ⁽⁴⁾	1,5

incremental factor for $N_{Rk,p}$ ⁽⁶⁾		
ψ_c	C30/37	1,22
	C40/50	1,41
	C50/60	1,58

NOTES:

- (1) Concrete cone failure mode.
- (2) Splitting failure mode.
- (3) Pull-out failure mode.
- (4) Steel failure mode ($V_{Rk,s}$).
- (5) Pry-out failure mode ($V_{Rk,cp}$).
- (6) Tensile-strength increment factor (excluding steel failure).

GENERAL PRINCIPLES:

- Characteristic values according to ETA-19/0100.
- Design values can be obtained from characteristic values as follows:
 $R_d = R_k / \gamma_M$.
Coefficients γ_M are listed in the table in accordance with the failure characteristics and product certificates.
- For the calculation of anchors with reduced spacing, or too close to the edge, please refer to ETA. Similarly, in case of fastening on concrete-supports with a better-grade, limited thickness or a thick reinforcing layer please see ETA.
- When designing anchors under seismic load please refer to the ETA referral document and information in the EOTA Technical Report 045.
- For the calculation of anchors subjected to fire refer to the ETA and the Technical Report 020.